

# Mineral Industry Surveys

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## MOLYBDENUM IN MAY 2003

Domestic production of molybdenum in concentrate in May 2003 was about 5% less than that of the previous month and was about 62% more than that of May 2002, according to the U.S. Geological Survey. Producer stocks of molybdenum in concentrate, oxide, and other product forms were about 8,250 metric tons (t) at the beginning of 2003 and 6,510 t at the end of May.

According to Ryan's Notes (2003c), the May monthly averages for U.S. ferromolybdenum (FeMo) prices ranged from \$5.472 to \$5.706 per pound of molybdenum content, compared with \$5.261 to \$5.528 in April. European FeMo monthly averages ranged from \$13.433 to \$13.750 per kilogram of molybdenum content in May as compared with \$11.733 to \$12.044 in April. In May, worldwide molybdenum oxide prices ranged from \$5.461 to \$5.644 per pound versus \$4.767 to \$5.078 in April.

FeMo prices surged at the end of May after slow gains earlier in the month (Ryan's Notes, 2003b). European FeMo prices were booked at \$14.30 to \$14.45 per kilogram and Chinese material was booked at just over \$12 per kilogram. Molybdenum oxide prices were stable at about \$6 per pound, and traders complained that prices for FeMo and molybdenum oxide were so misaligned in the United States that oxide and FeMo sales were booked at the same price.

Chilean producer Corporacion Nacional del Cobre, Chile (Codelco) informed customers that its molybdenum roaster at Chuquicamata, Chile, would not be operating again until October (Ryan's Notes, 2003a). The Chuquicamata roaster

was shut down in early March for unplanned maintenance. At that time the company anticipated resuming roasting by the end of March. Instead, Codelco has decided to make major technical improvements. Codelco has secured roasting capacity for its concentrates and still expects to produce 50 to 51 million pounds of molybdenum this year.

Two separate mining accidents in early May in the Huludao region of China's Liaoning Province caused Chinese authorities to shut all mines in the region for safety inspections (Platts Metals Week, 2003). Although some mines resumed production by the end of the month, many remained shut, which reduced concentrate supply. Officials said many FeMo plants, which continued to operate in May with reduced feedstocks, would be required to shut down for state inspections in June. The impact on China's molybdenum output for the year will depend on the duration of these shutdowns. China accounts for about 20% of the global molybdenum mine output of 130,000 metric tons per year with the Huludao region producing at least 30% of the Chinese molybdenum concentrate output.

## References Cited

- Platts Metals Week, 2003, Jittery moly market sees echoes of last spring: Platts Metals Week, v. 74, no. 21, May 26, p. 8.  
Ryan's Notes, 2003a, Codelco roaster remains shut: Ryan's Notes, v. 10, no. 18, May 5, p. 2.  
Ryan's Notes, 2003b, Moly prices firm: Ryan's Notes, v. 10, no. 21, May 26, p. 2.  
Ryan's Notes, 2003c, [untitled]: Ryan's Notes, v. 9, no. 22, June 2, p. 4.

TABLE 1  
U.S. SALIENT MOLYBDENUM CONCENTRATE STATISTICS<sup>1</sup>

(Metric tons, contained molybdenum)

	2002	2003		
	January- December <sup>p</sup>	April	May	Year to date
Production	32,400	2,610	2,480	13,900
Shipments: <sup>2</sup>				
Domestic	21,200	1,430	1,470	8,470
Export	11,100	912	701	4,600

<sup>p</sup>Preliminary.

<sup>1</sup>Data are rounded to no more than three significant digits.

<sup>2</sup>As reported by producers.

TABLE 2  
U.S. REPORTED PRODUCTION AND SHIPMENTS OF MOLYBDENUM  
PRODUCTS<sup>1</sup>

(Metric tons, contained molybdenum)

	2002	2003		
	January- December <sup>p</sup>	April	May	Year to date
Gross production	31,300	3,310	3,300	15,400
Internal consumption <sup>2</sup>	20,700	2,290	2,090	11,600
Gross shipments	27,500	2,830	2,690	11,800

<sup>p</sup>Preliminary.

<sup>1</sup>Data are rounded to no more than three significant digits.

<sup>2</sup>Includes molybdic oxides, metal powder, ammonium molybdate, sodium molybdate, and other.

TABLE 3  
U.S. REPORTED CONSUMPTION, BY END USES, AND CONSUMER STOCKS OF MOLYBDENUM MATERIALS<sup>1</sup>

(Kilograms, contained molybdenum)

End use	Molybdc oxides	Ferro molyb- denum <sup>2</sup>	Ammonium and sodium molybdate	Molyb- denum scrap	Other	Total
2003, April:						
Steel:						
Carbon	10,800	W	--	--	W	10,800
High-strength low-alloy	32,000	7,320	--	--	--	39,400
Stainless and heat-resisting	158,000	68,500	--	--	7,180	234,000
Full alloy	104,000	171,000	--	--	1,920	277,000
Tool	103,000	W	--	--	W	103,000
Total	408,000	247,000	--	--	9,100	664,000
Cast irons (gray, malleable, and ductile iron)	W	19,800	--	--	763	20,600
Superalloys	60,500	W	--	(3)	112,000	172,000
Alloys: (other than steels, cast irons, and superalloys)						
Welding materials (structural and hard-facing)	--	W	--	--	6	6
Other alloys	117	5,730	--	--	2,970	8,810
Mill products made from metal powder <sup>4</sup>	--	--	--	--	95,100	95,100
Cemented carbides and related products <sup>5</sup>	--	--	--	--	26	26
Chemical and ceramic uses:						
Pigments	--	--	W	--	W	W
Catalysts	77,300	--	W	--	W	77,300
Other	--	--	--	--	--	--
Miscellaneous and unspecified uses:						
Lubricants	--	--	--	--	13,500	13,500
Other	1,090	30,000	78,400	--	18,900	128,000
Grand total	547,000	302,000	78,400	--	252,000	1,180,000
Stocks, April 30, 2003	379,000	222,000	5,890	16,600	862,000	1,490,000
2003, May:						
Steel:						
Carbon	12,300	W	--	--	W	12,300
High-strength low-alloy	30,200	7,840	--	--	--	38,100
Stainless and heat-resisting	118,000	69,700	--	--	7,180	195,000
Full alloy	92,500	168,000	--	--	1,920	263,000
Tool	68,600	W	--	--	W	68,600
Total	322,000	246,000	--	--	9,100	577,000
Cast irons (gray, malleable, and ductile iron)	W	18,900	--	--	763	19,600
Superalloys	47,300	W	--	(3)	106,000	154,000
Alloys: (other than steels, cast irons, and superalloys)						
Welding materials (structural and hard-facing)	--	W	--	--	6	6
Other alloys	327	600	--	--	2,970	3,890
Mill products made from metal powder <sup>4</sup>	--	--	--	--	85,000	85,000
Cemented carbides and related products <sup>5</sup>	--	--	--	--	9	9
Chemical and ceramic uses:						
Pigments	--	--	W	--	W	W
Catalysts	77,300	--	W	--	W	77,300
Other	--	--	--	--	--	--
Miscellaneous and unspecified uses:						
Lubricants	--	--	--	--	15,300	15,300
Other	1,090	29,800	76,100	--	18,000	125,000
Grand total	448,000	295,000	76,100	--	238,000	1,060,000
Stocks, May 31, 2003	384,000	236,000	5,650	39,900	862,000	1,530,000

W Withheld to avoid disclosing company proprietary data; included in "Other" of the "Miscellaneous and unspecified uses" category. -- Zero.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Includes calcium molybdate.

<sup>3</sup>Included in "Other" of the "Superalloys" category.

<sup>4</sup>Includes ingot, wire, rod, and sheet.

<sup>5</sup>Includes construction, mining, oil and gas, metal working machinery.

TABLE 4  
U.S. EXPORTS OF MOLYBDENUM ORES AND CONCENTRATES  
(including roasted concentrate), BY COUNTRY<sup>1</sup>

(Kilograms, contained molybdenum)

Country	2002	2003		Year to date
	January-December <sup>p</sup>	March	April	
Australia	46,900	11,500	3,540	18,000
Belgium	4,380,000	214,000	376,000	984,000
Brazil	32,600	6,000	4,800	15,900
Canada	1,080,000	140,000	55,600	448,000
Chile	16,200	--	6,040	14,200
China	56,700	--	--	--
Germany	64,400	--	1,440	1,440
India	141,000	430	--	11,300
Italy	47,900	--	9,520	15,200
Japan	1,130,000	245,000	359,000	739,000
Korea, Republic of	70,600	7,710	6,800	21,700
Mexico	484,000	349,000	123,000	1,270,000
Netherlands	7,330,000	675,000	913,000	2,630,000
Spain	41,200	--	--	--
Sweden	35,000	9,640	10,900	20,500
Taiwan	12,600	6,190	--	9,590
United Kingdom	4,330,000	526,000	514,000	1,770,000
Other	153,000	15,900	5,240	32,200
Total	19,500,000	2,210,000	2,390,000	8,000,000

<sup>p</sup>Preliminary. -- Zero.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown

Source: U.S. Census Bureau.

TABLE 5  
U.S. EXPORTS OF FERROMOLYBDENUM, BY COUNTRY<sup>1</sup>

(Kilograms, contained molybdenum)

Country	2002	2003		Year to date
	January-December <sup>p</sup>	March	April	
Australia	--	--	--	273
Canada	597,000	59,400	5,720	145,000
Chile	240	--	--	--
Denmark	5,110	--	--	--
Japan	--	61	--	61
Mexico	51,400	7,590	--	7,590
Netherlands	--	--	--	25,500
Switzerland	21,800	--	--	--
Taiwan	274	--	--	--
Total	676,000	67,100	5,720	178,000

<sup>p</sup>Preliminary. -- Zero.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown

Source: U.S. Census Bureau.

TABLE 6  
U.S. IMPORTS FOR CONSUMPTION OF MOLYBDENUM PRODUCTS<sup>1</sup>

(Kilograms, unless otherwise specified)

Material	January-December 2002 <sup>P</sup>			April 2003		
	Gross weight	Contained molybdenum	Value (c.i.f.) (thousands)	Gross weight	Contained molybdenum	Value (c.i.f.) (thousands)
Ore and concentrates roasted	7,030,000	4,370,000	\$33,500	443,000	277,000	\$2,430
Ore and concentrates other	664,000	340,000	3,450	160,000	76,200	715
Molybdenum chemicals:						
Oxides and hydroxides	1,200,000	NA	7,660	117,000	NA	827
Molydates of ammonium	1,740,000	1,010,000	11,200	132,000	76,100	939
Molydates (all others)	435,000	88,600	1,630	19,100	369	45
Molybdenum orange	1,300,000	NA	5,490	97,400	NA	368
Ferromolybdenum	5,570,000	3,590,000	31,400	703,000	428,000	4,200
Molybdenum powders	39,500	31,700	1,110	4,160	3,900	155
Molybdenum unwrought	43,500	43,200	542	20,200	20,000	231
Molybdenum waste and scrap	697,000	617,000	6,910	53,700	53,400	492
Molybdenum wire	14,600	NA	697	367	NA	28
Molybdenum other	84,800	NA	7,240	3,520	NA	365
Total	18,800,000	10,100,000	111,000	1,750,000	936,000	10,800

<sup>P</sup>Preliminary. NA Not available.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

Source: U.S. Census Bureau.